

Figure 1: Audience Measurement System

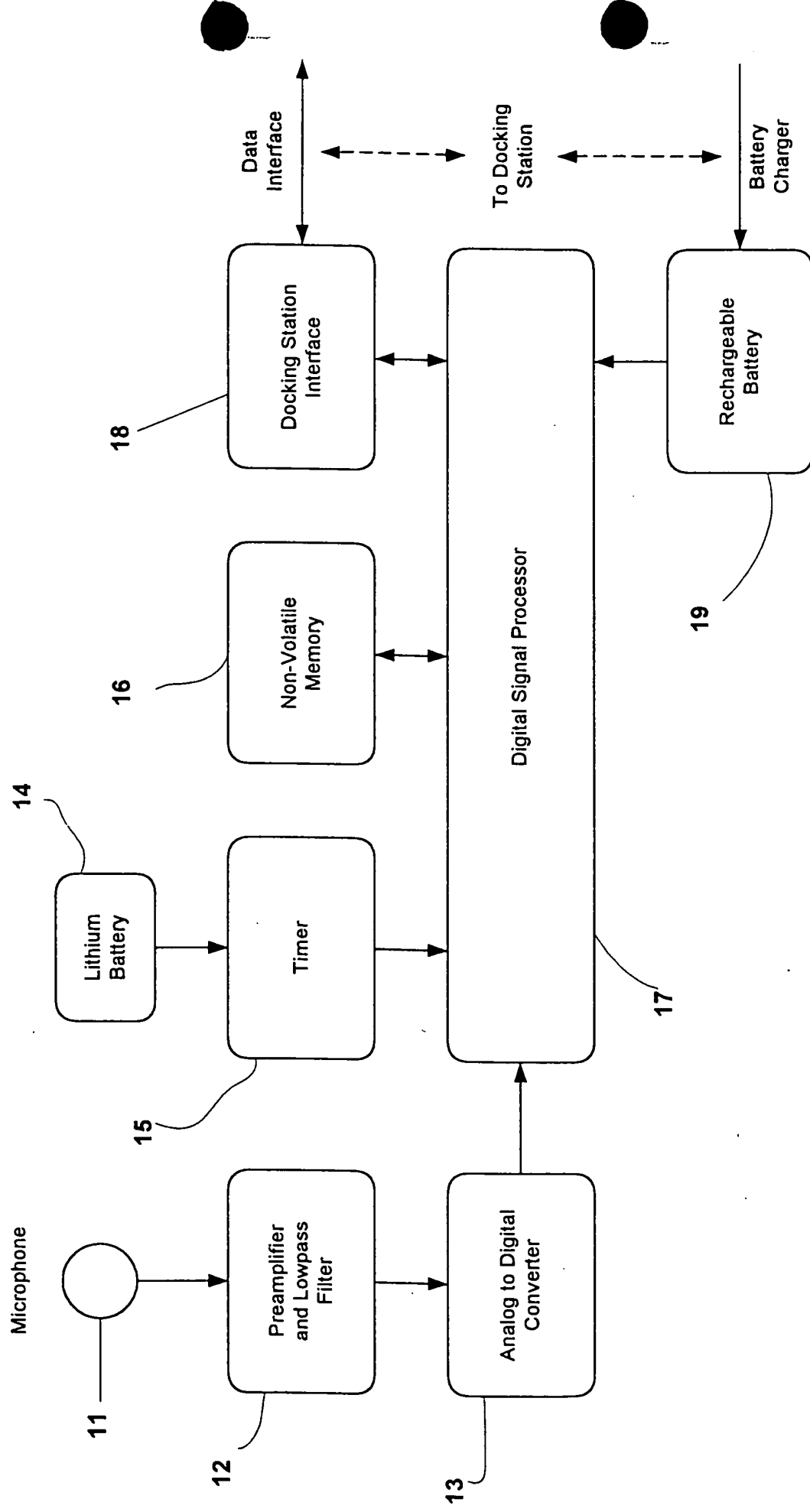


Figure 2: Portable Monitor Unit

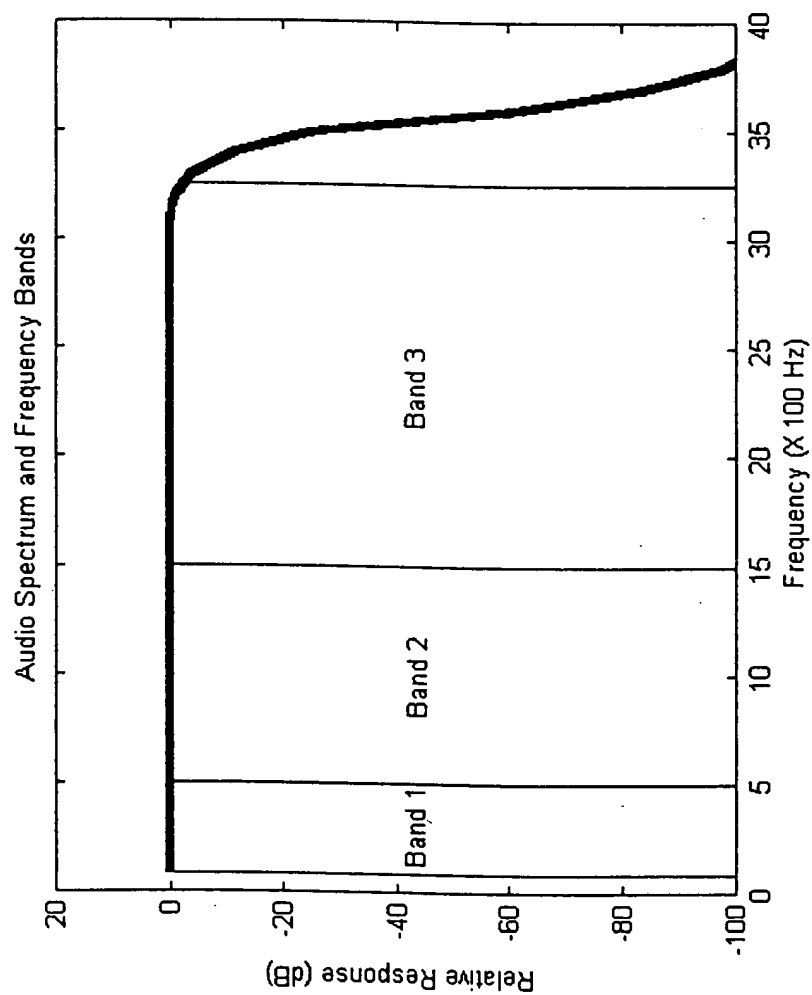


Figure 3: Audio Frequency Bands

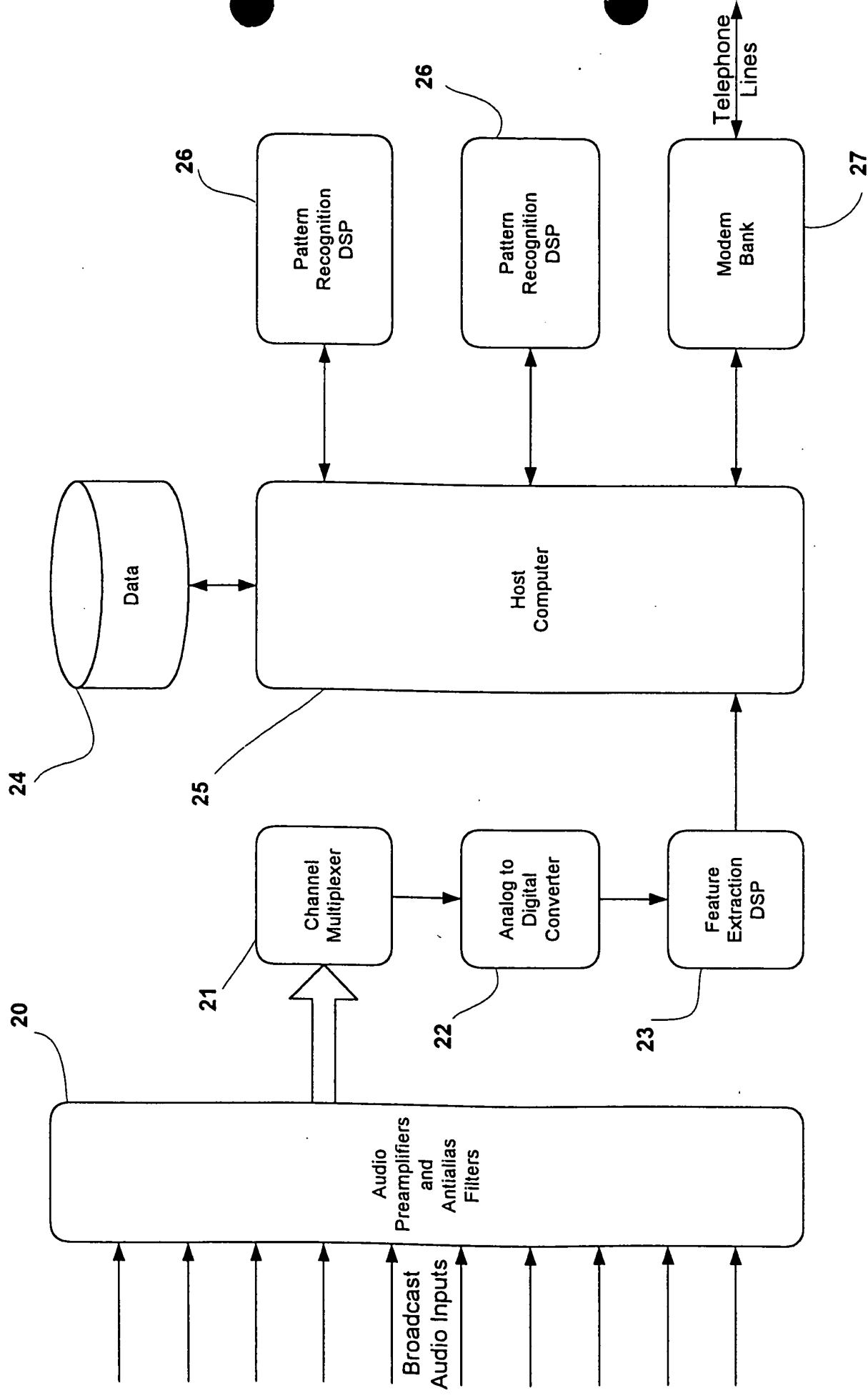


Figure 4: Central Computer System

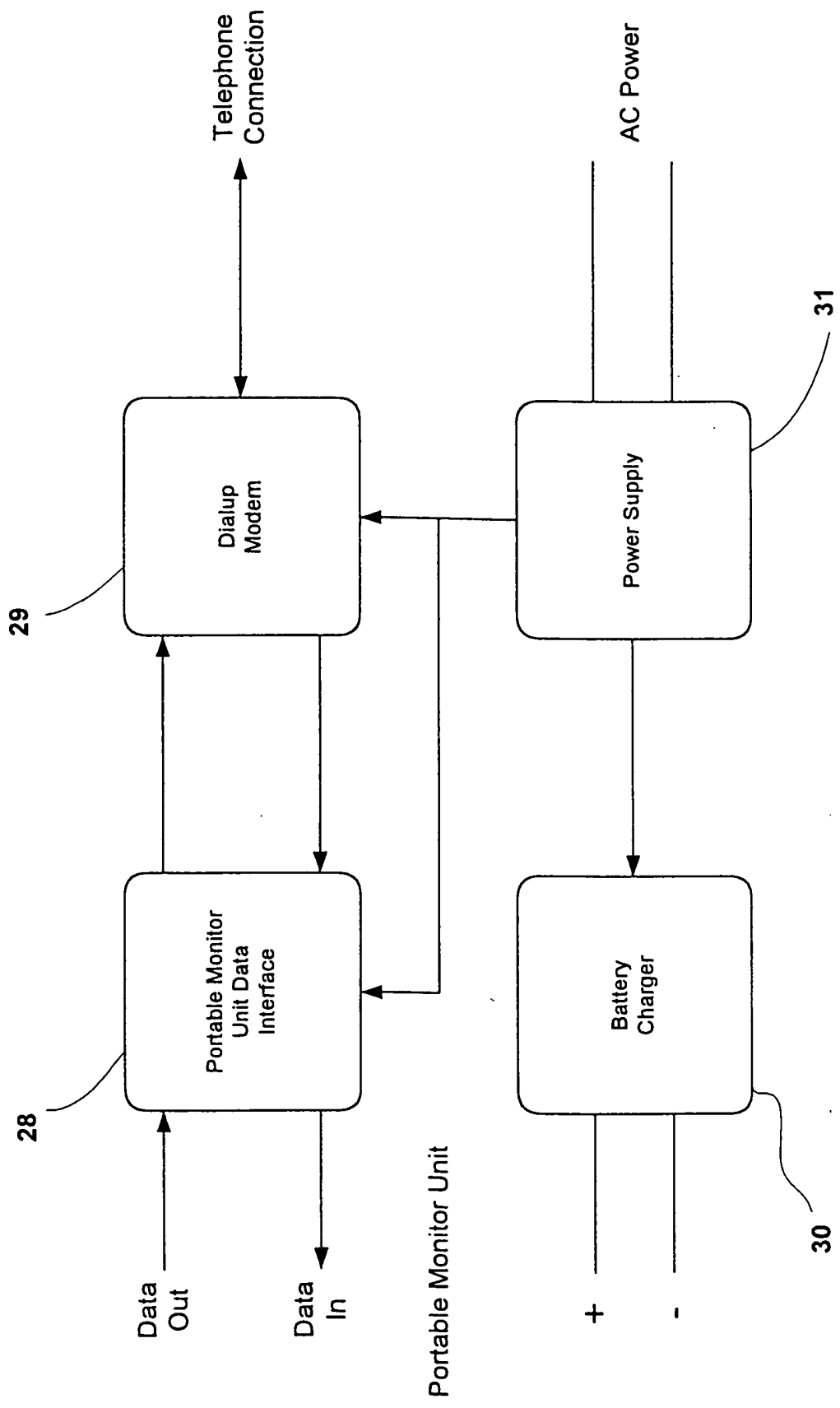


Figure 5: Portable Monitor Unit Docking Station

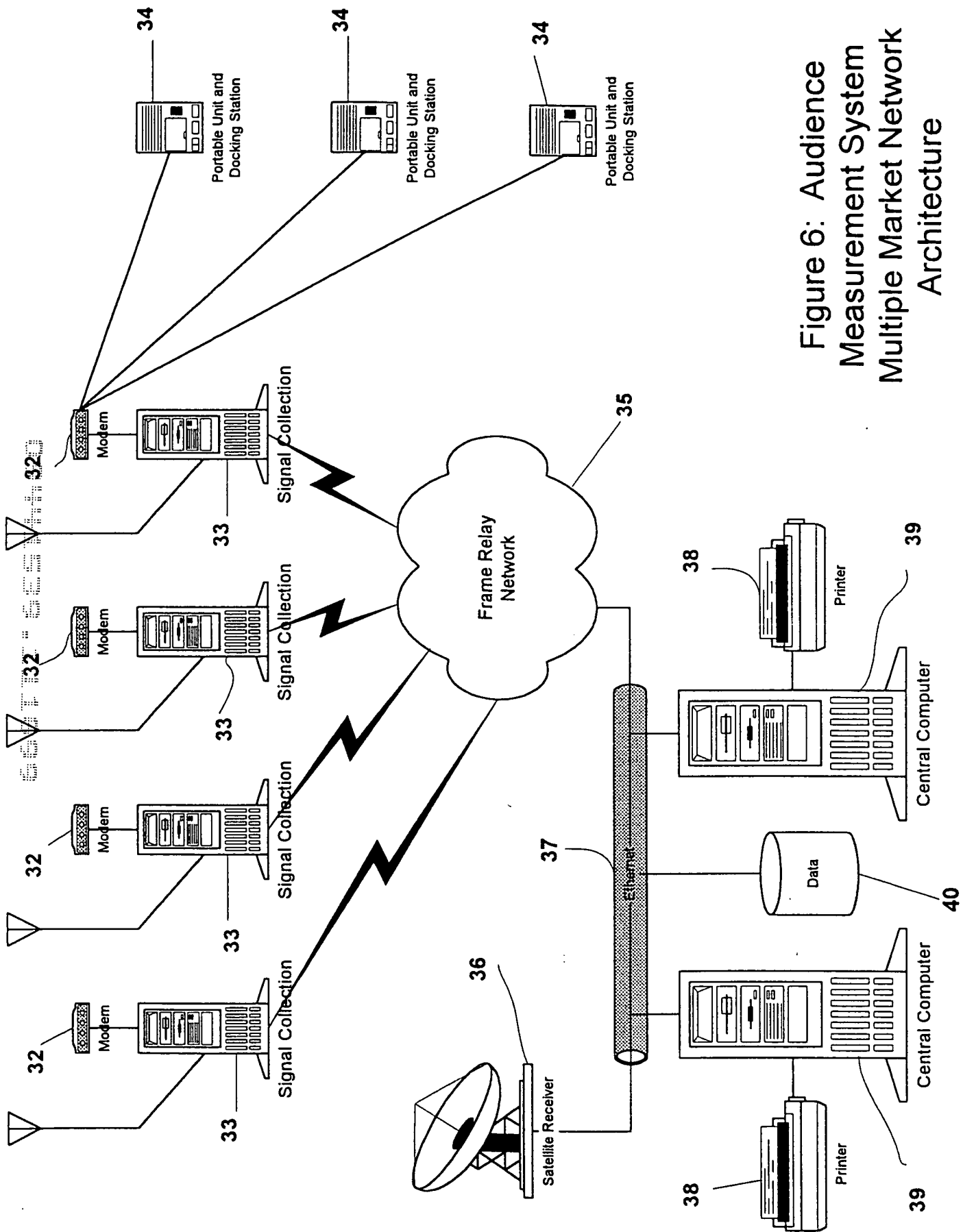


Figure 6: Audience Measurement System Multiple Market Network Architecture

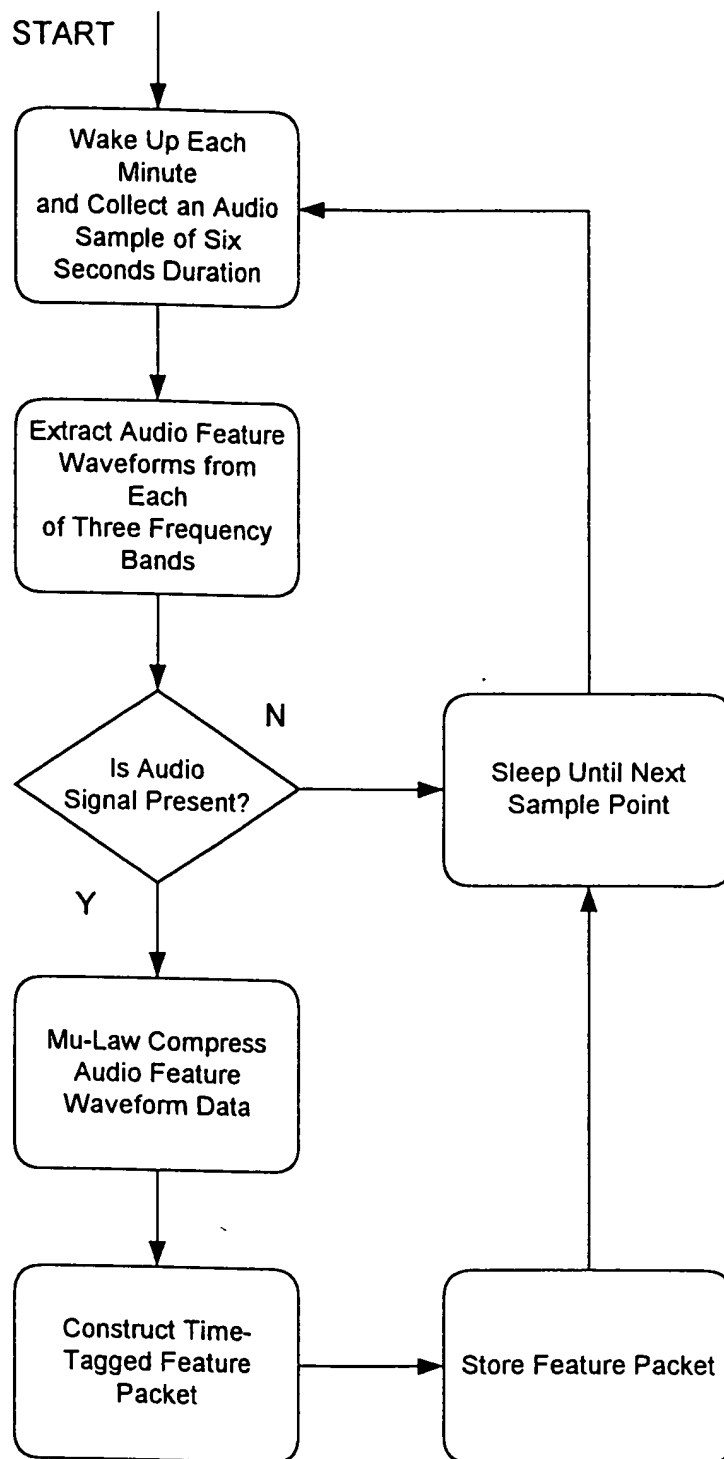


Figure 7: Portable Monitoring Unit  
Audio Signal Acquisition Strategy





START

Synchronize Time  
from Portable Unit  
with Central  
Computer

Read Sample Packets  
from Portable Unit

Find Time Matched  
Source Packets on  
Central Computer

Compare Unknown  
Packet with Each  
Source Packet

Find Source With  
Minimum Weighted  
Euclidean Distance

N

Y

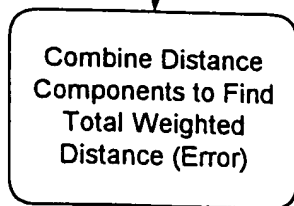
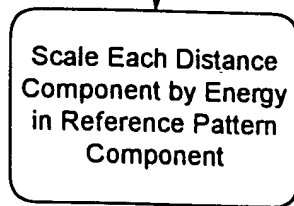
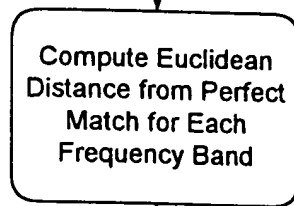
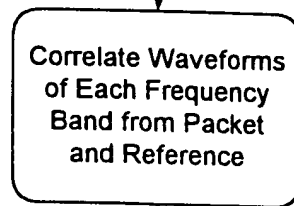
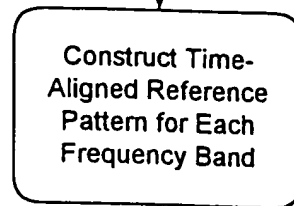
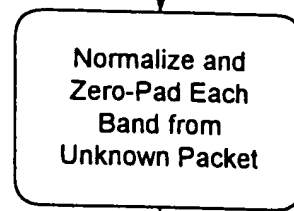
Record Source  
Unknown

Is  
Distance Below  
Threshold?

Record Source  
Identification

Figure 9: Unknown Packet Identification Procedure

START



FINISH

Figure 10: Simplified Pattern Matching Procedure

START

Time Align New  
Feature Packet with  
Source Reference  
Pattern

Compute New  
Short Term  
Weighted Euclidean  
Distance

Update Long Term  
Exponential  
Weighted Euclidean  
Distance

Find Source With  
Minimum Exponential  
Weighted Euclidean  
Distance

N

Y

Record Source  
Unknown

Is  
Distance Below  
Threshold?

Record Source  
Identification

Figure 11: Predecision Exponential Averaging of Weighted Distances